

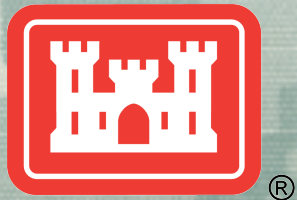
Howard Hanson / Green River Update

Larry Schick

USACE - Water
Management

Seattle District

Oct 7th, 2010



®

US Army Corps of Engineers
BUILDING STRONG®



Army Corps Seattle



- Own & operate two dams for winter flood risk management (HHD & MMD)
- Take control of three hydro power dams with flood control space



Flood Management Strategy



- Manage flood risk below the dam
- Evaluate wx/hydro forecast, first below dam
- Use dam and available storage to control flow to lower basin. (travel time)
- Evaluate wx/hydro forecast/reality above dam



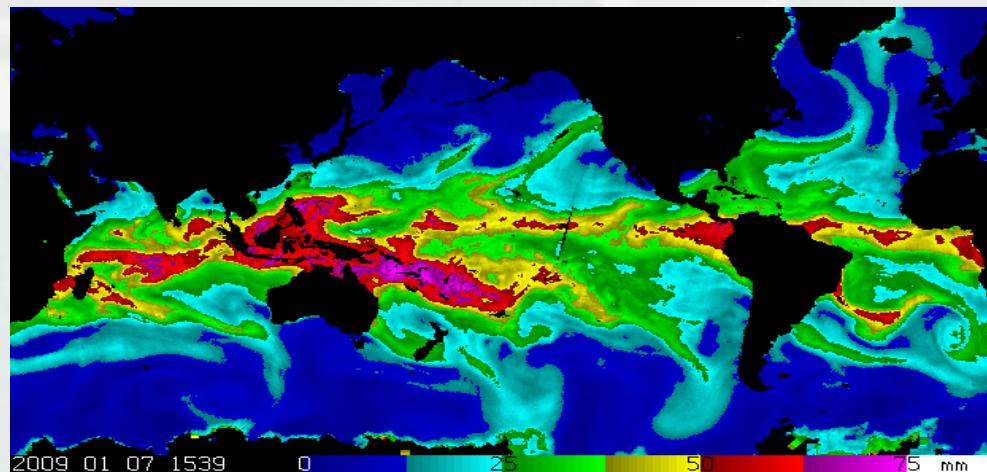
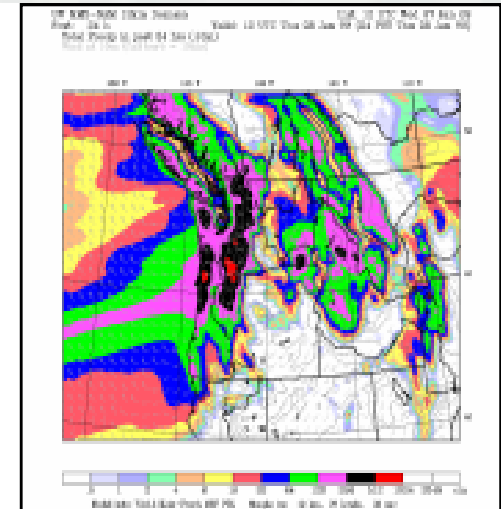
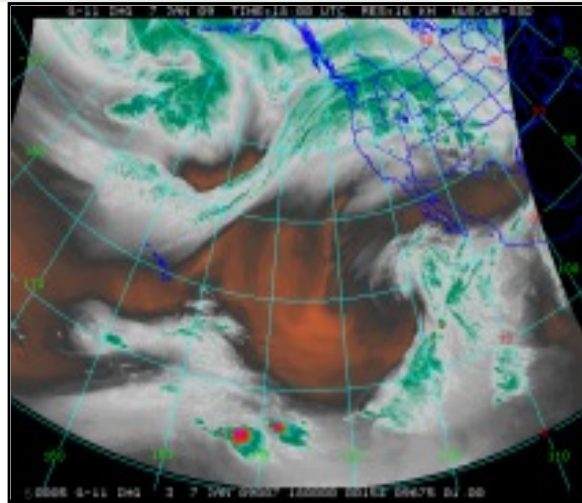
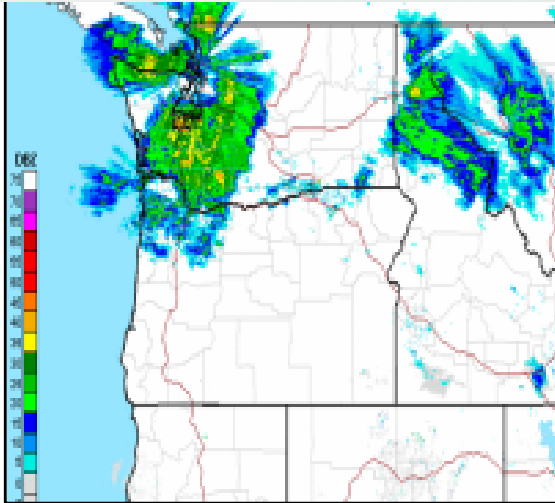
Howard Hanson Dam



- Provides flood risk management south of Seattle – since 1962
- Impacts: > 30,000 people / 18 billion infrastructure
- Flood risk management, water supply & conservation water for fish



AR of January 2009



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Initial Problem



- Jan 2009 flood - Record flood pool
Estimated flood damages prevented:
four billion dollars
- Dam safety issues (seepage, depressions)
- 1 / 3 chance of flooding



Last Flood Season



- Grout curtain installed by fall 2009
- Flood chance improved 1 / 25
- No threatening rain/floods: 2009-10
- Spring refill 2010 - hold 1167' pool for two months
- Test and evaluate



NOW: 2010 - 2011 Flood Season

- Pool slowly evacuated – empty before flood season – Nov 1
- Confident flood pool to 1170'
- Enhanced real time monitoring above 1170'
- Flood chance 1 / 60



Howard Hanson Dam -Future



- Improve drainage tunnel
- Restore original design flood risk – 1/140
- To be completed by Fall 2011

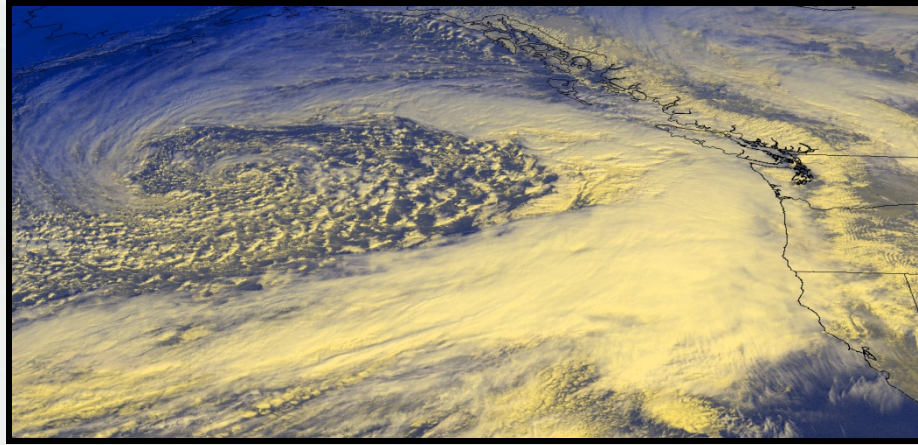


NOAA Support

- Special attention: Seattle NWS, NWRFC and ESRL
- Instrumentation, AFD hydro discussions, AR observatories
- Collaboration/communications with all stakeholders and the public



Northwest AR Observatories



- Used to observe and verify ongoing weather – AR potential
- Last winter EL Nino: not active in NW
- No significant ARs in the Cascades. Few moderate ARs Olympic mountains



Northwest AR Observatories

- Mid January: Moderate AR into Olympic Mountains – no radar coverage
- Consider “taking control” Wynoochee dam Flow: rising near threshold, Precip: moderate
- Checked limited radar, satellite and ARO
- ARO confirms end of event near – advised staff not take over Wynoochee



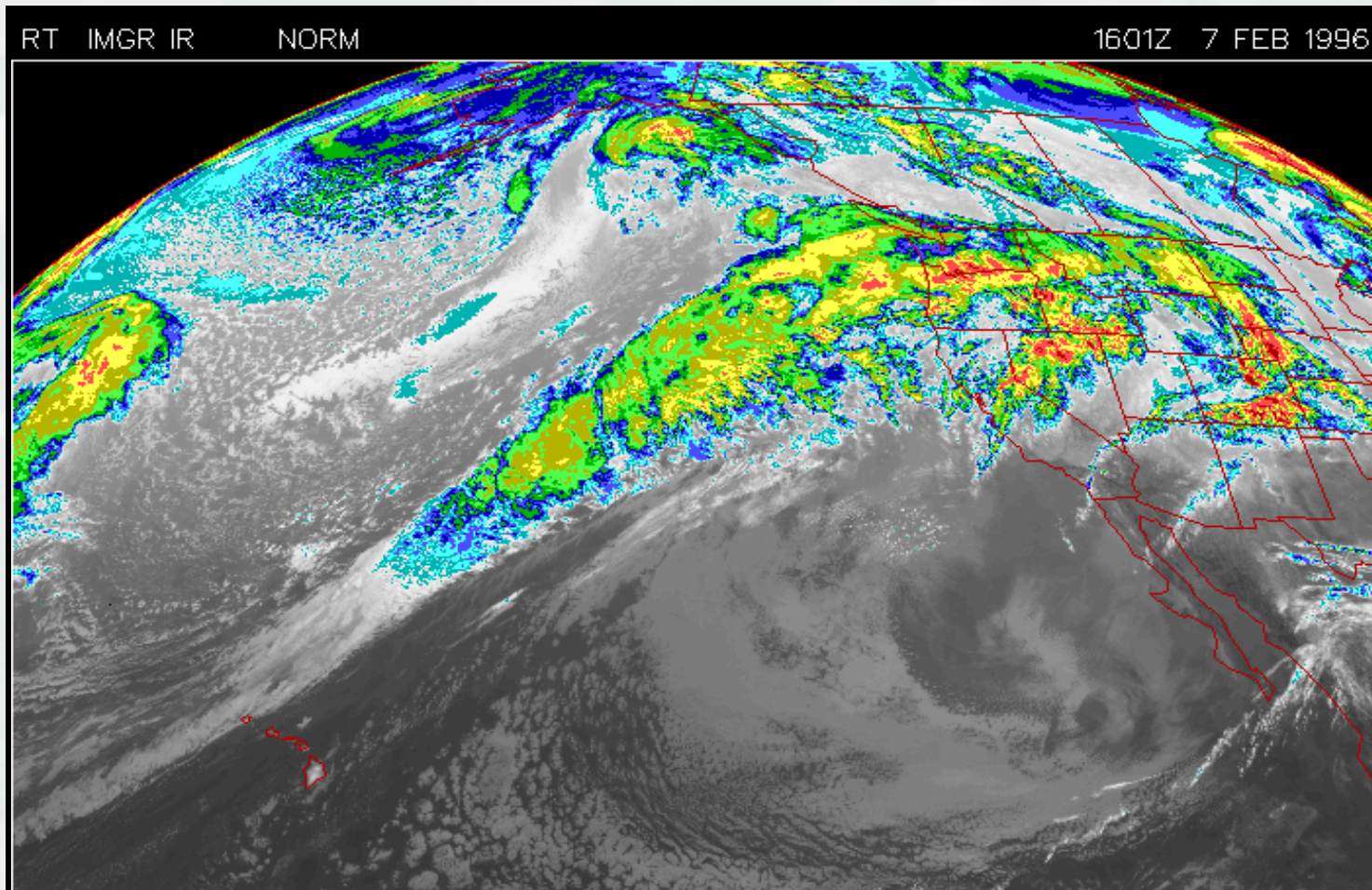
Future HMT For NW

- ARO for Skagit River
- Calibrate ARO' s with basins/hydro modeling
- Incoming AR detection, magnitude, and orientation – match with basins
- Understand details – stalling, vulnerable basins
- Real time modeling



Questions

Larry Schick - US Army Corps - Seattle



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